Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of the Commission's Rules	)	CC Docket No. 94-102
to Ensure Compatibility with	)	
Enhanced 911 Emergency Calling Systems	)	

COMMENTS

The Washington Telecommunications Ratepayers Association for Cost-based and Equitable Rates ("Washington TRACER") and the Oregon Telephone Ratepayers Association for Cost-based and Equitable Rates ("Oregon TRACER")(collectively, "TRACER"), by their attorneys, respectfully submit the following comments on the Notice of Proposed Rulemaking ("Notice") in the above-captioned proceeding, FCC 94-237, released October 19, 1994. While the members of both TRACER organizations firmly support the goal of providing fast, efficient, and effective response to emergency situations, they believe that the proposed rules need to be modified in several important respects in order to avoid placing unreasonable burdens on end-users, accurately reflect the way in which enhanced 911 services are actually delivered, eliminate confusion, and avoid causing unintended degradation in efficient, functioning emergency response procedures.

I. STATEMENT OF INTEREST

Washington TRACER and Oregon TRACER are a diverse associations of large telecommunications users with operations in Washington State and Oregon, respectively. Washington TRACER includes among its members large manufacturing, forest products and retail concerns, financial institutions, hospitals, and an organization providing data processing services to almost 200 school districts. Oregon TRACER includes among its members large manufacturing, forest products and retail concerns, hospitals, and state and local governmental entities. The mission of both organizations is to protect and promote the interests of large telecommunications users.

TRACER members have a strong interest in ensuring that their employees are provided with effective and appropriate emergency response services in the most efficient and cost-effective manner. To this end a number of TRACER members have well-developed emergency response procedures and resources in place. Some involved procedures requiring that workers notify company security personnel in the event of an emergency. The company security then calls 911 or dispatches internal emergency response teams who can respond significantly more quickly than outside personnel and are specially trained and have special equipment for specific types of expected emergencies.

TRACER members also have been heavily involved in state efforts to analyze the possible ways of achieving compatibility between private switching systems and public enhanced 911

emergency systems. Washington TRACER representatives participated as a member on a Washington State E-911 Advisory Committee PBX Work Group. That Work Group performed a year-long study of the interaction of PBXs and other private switching systems and the E-911 network. And, in the fall of 1992, representatives from Washington TRACER were instrumental in bringing to the attention of the Telecommunications Industry Association (TIA) the caller location requirements of emergency response agencies and various issues involved in providing full access to E-911 service to users of multi-line telecommunications systems. Oregon TRACER representatives are participating in efforts that are just beginning in Oregon to analyze the implications of these compatibility issues.

In addition, some TRACER members have been among the pioneers in achieving E-911 compatibility for their PBX; for example, Boeing with its 5ESS switches has been supporting E-911 service for a number of years.

In view of these interests, TRACER members support efforts by the Commission to "ensure broad availability of 911 and enhanced 911 services to users of the public switched telephone network (PSTN) whose health and safety may depend on 911 emergency services systems . . . [and] to ensure that the effective operation of 911 services is not compromised by new developments in telecommunications." Notice at 2. However, they do have concerns about some of the specifics of the Commission's proposed rules. In the remainder of these Comments, TRACER will

respond to the inquiries in the Notice and suggest how the Commission should clarify and modify its proposal in order to ensure that the necessary compatibility is achieved without imposing undue burdens on PBX owners or inadvertently causing a degradation in the quality and effectiveness of existing emergency response systems.

II. THE COMMISSION'S PROPOSED RULES SHOULD BE MODIFIED IN CERTAIN RESPECTS TO ACHIEVE DESIRED, COST-EFFECTIVE PBX/E-911 COMPATIBILITY AND EFFECTIVE EMERGENCY RESPONSE.

In its desire to achieve the compatibility of PBX equipment with enhanced 911 services, the Commission proposes to require that:

(1) PBX equipment be capable of transmitting to the PSAP the caller's telephone number, caller location identification, and a call-back number;

(2) Users be able to reach public emergency services by dialing 911 without having to dial additional digits (such as "9") to get an outside line;

(3) PBX equipment be capable of notifying an on-premises attendant when a 911 call is made;

(4) PBX owners be required to transmit updated caller location information to LECs in a timely fashion;

(5) PBX owners be required to provide LECs with information regarding trunk and station number verification;

(6) Verification work be performed under the supervision of specially trained personnel or licensed professional engineers; and

(7) Enough E-911 trunks be in place to maintain an availability of P=0.01 based on the number of users served.

A. Ability of PBXs to Pass ANI, ALI and Call-Back Number

The proposed rules would require that PBX equipment be able to provide the 911 caller's station number identification, caller

location identification, and call back number to PSAP personnel. These requirements would apply to equipment that is manufactured or imported one year after, or installed 18 months after, the adoption of final rules.

TRACER supports the adoption of a requirement that only new PBX equipment be capable of passing the required information. This assumes, of course, that any new requirements will not cause the price of PBXs to increase substantially or result in inflated, non-cost-based charges being imposed on multi-line customers.[1] As the Washington PBX Work Group concluded, modifying existing PBX systems to accommodate the existing E-911 network signaling would be very expensive. In addition, some systems would need to be replaced because they are not capable of being modified. TRACER does not believe that this considerable expense can be justified given the fact that PBX 911-caller location problems occur infrequently.[2]

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[1] Based on its experience with the Washington PBX Work Group, it is apparent to TRACER that the LECs have considerable incentive to use the E-911 compatibility issue to gain competitive advantages for its centrex products over PBXs.

[2] It is important to remember that PBX 911-caller location problems arise only for stations that are located remotely from the line termination location. For many small businesses, all of the telephones connected to the PBX may be close enough to the line termination location so that the ANI and ALI associated with that line termination location are acceptable for purposes of responding to any emergency. The same may be true for many of the telephone stations located behind PBXs on the premises of larger businesses.

It is also important to note that the location problem is most acute when the caller is not able to verbally describe where he or she is. When a 911 call is placed from a PBX station located remotely from the line termination location and the

While TRACER members support the adoption of a forward-looking requirement for new PBXs, they are confused about just what the requirements are that the Commission is proposing. Read literally, the proposed rule appears to require that the PBX equipment itself be able to transmit to the PSAP the calling station identification, the location information, and a call-back number. While it may well be that in the long-term the most desirable solution to the 911-caller location identification problem is to have the necessary location database resident in the PBX and require the PBX to transmit the location and call-

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caller is able to verbally identify his or her location, appropriate emergency response can be made to the correct address. PSAP Call-Taker training and suitable call transfer procedures are important so that the call can be transferred to the appropriate PSAP.

As noted by the Washington PBX Work Group in its September 23, 1993 report entitled, "PBX Work Group Report on the Interaction of PBXs and KTSs with E-911 Calling Service", a King County, Washington, 911 Survey for a 12-month period ending January 1, 1991,

> indicates that only 1.8% of all 911 calls are placed from stations behind a PBX. Presumably, many of these calls involved cases where the ANI and ALI passed to the PSAP was adequate because the call was placed from a phone close to the line termination location. Further, it is reasonable to assume that many involved cases where the caller could verbally describe his or her location. Indeed, the results of the PSAP Survey suggest that in only a very small percentage of cases is the caller not able to identify his or her location (0.34%). . . .
>
> As a general matter, the greatest concern about having automatic location identification for emergency callers exists in those instances where the caller is likely to be alone. In a typical business setting co-workers are likely to be near and able to verbally describe the location of the emergency.

PBX Work Group Report at 14.

back information directly to the PSAP, this is not the way in which the present E-911 system operates.

Although there are some significant differences in how E-911 calling service is currently being implemented in various areas of the country, basically the service is provided as follows: When an emergency arises, a caller simply dials the three-digit phone number 911.[3] The serving LEC central office (CO) recognizes this as an emergency call and immediately seizes a special dedicated trunk to a Selective Router (in some areas this is a 1AESS tandem office and in others it may be a stand-alone device). The CO then transmits the seven-digit (or ten-digit) phone number associated with the caller's telephone line (ANI). The CO normally transmits the caller ANI to the Selective Router using so-called Centralized Automatic Message Accounting (CAMA) protocol. That protocol uses Multi-Frequency (MF) signaling. The Selective Router uses the ANI to determine which PSAP should handle the call. It does this by referring to selective routing tables that reside in the memory of the Selective Router switch. These tables are maintained by the switch administrator, usually a local telephone company. The Selective Router seizes a trunk to the appropriate PSAP, and relays the caller's ANI before connecting the call. At the PSAP, special E-911 telephone terminal equipment receives the caller's ANI and sends it to a

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[3] For calls made from phones connected to a PBX, the caller may be required to dial an outgoing trunk access code, typically the digit 9, before dialing 911.

special database.[4] A program at the database extracts a record of information associated with the caller's ANI, including the caller's location, and displays it to the PSAP Call-Taker who answered the call. Since the location information was extracted form the database using the caller's ANI, the process is referred to as Automatic Location Identification (ALI).

In sum, the present E-911 system requires only that a PBX transmit a seven-digit (or ten-digit) station identifier in the proper format and using the proper protocol. The location information, including an appropriate call-back number is obtained from a centralized database, not the PBX. Thus, if it is not the Commission's intent to require that this information be provided by the PBX, as opposed to the manner in which it is provided in E-911 systems today, TRACER recommends that the rule be modified to make that intent clear.

Regardless of which approach the Commission intends, TRACER believes that significant technical work will be required of PBX manufactures. It is, therefore, critical that ample time be allowed to permit compliance with any rule that is adopted. At

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[4] In Washington, centralized databases, usually maintained by the LECs, are utilized. The databases use large computer systems to house and maintain specific customer records. Dedicated data circuits extend from each PSAP to the centralized database to obtain information about the specific 911-caller. The database uses a Master Street Address Guide (MSAG) to standardize street names, community boundaries, county boundaries, and Emergency Service Numbers (ESNs). ESNs designate unique combinations of police, fire, and medical (ambulance) service providers that serve specific regions within the community.

this time, TRACER is unable to determine what that will be and, therefore, will defer to the PBX manufacturers.

B. Ability to Reach 911 Without Dialing "9" First

The proposed rules would require that callers using PBX stations "have the ability to reach emergency services by dialing 911 without having to dial any additional digits." Notice at ¶ 22. TRACER believes that this requirement is unnecessary and will create serious problems with users' internal dialing plans and may cause substantial post-dial delay.

The Washington PBX Work Group was not able to generate any evidence that people who regularly use phones located behind a PBX have any significant problems with the dialing sequences required to reach 911. It could only speculate that infrequent users, such as hotel guests, might be confused in an emergency situation and, therefore, believed it desirable that they be informed of the necessary dialing sequences. It was felt, however, that this could be done with labels attached to each phone or by other means of notification. TRACER concurs with that conclusion.

TRACER members do not believe that requiring their users to dial an outgoing trunk access code presents a serious problem and certainly not one that justifies the expense and potential disruption that would result from forcing PBXs to permit access to emergency services without requiring a caller to dial additional digits. User education and proper labeling should be sufficient to handle any potential user confusion.

C. Attendant Notification

The proposed rules would require that PBX equipment be capable of notifying an attendant or on-premises personnel each time a 911 call is placed and providing the attendant with calling station information. TRACER has two concerns with this proposal.

First, as noted previously, many large users have well-established emergency response procedures, including specially trained personnel and specialized equipment appropriate for the types of emergencies likely to be encountered on their premises. Some of these procedures require workers to notify company security or emergency response personnel in the event of an emergency. These personnel then notify 911 or dispatch internal emergency response teams. These internal emergency response teams can respond more quickly than outside personnel and can often deliver a more appropriate response. TRACER would not want to see effective emergency response capabilities degraded in the name of providing a standardized E-911 capability. Accordingly, TRACER recommends that the Commission modify its proposed rules to provide that users with their own internal emergency response organizations will not be required to pass 911 calls directly to the LECs for delivery to an external PSAP.

TRACER also recommends that the Commission clarify its proposed rule to provide that users can designate the on-premises attendant to whom notification will be given, so that internal emergency response capabilities are not jeopardized.

D. Transmission of Updated Location Information to LECs

TRACER agrees that "timely and accurate database maintenance is an essential element of enhanced 911 service." Notice at ¶ 24. However, it is important to note that many PBX owners do not have extensive station location and assignment records that are routinely kept up-to-date. If individual records for every PBX station are required to be included in the E-911 ALI databases, those PBX owners will have to provide the ALI records and update them to reflect moves and changes. This will be a major undertaking. PBX owners will have to develop policies, procedures, and provide additional staff to accomplish this.

Based on the experience of the large users who have been providing E-911 capability for a number of years, TRACER believes that requiring PBX owners to provide updates on a weekly basis for moves or changes that have been made is sufficient to meet the Commission's objectives and the realistic needs of emergency responders. Requiring more frequent updates will be extremely difficult and expensive for many large users. Given the fact that weekly updates have been working well in Washington State for several years, TRACER does not believe that a more onerous requirement is justified.

In ¶ 27 of the Notice the Commission expresses its belief that a standard protocol for transmission of information associated with 911 calls is essential. While TRACER understands and agrees with the general desire to control PBX costs and assure nationwide compatibility, it is concerned that a

requirement to impose a standard data link interface could impose significant additional costs and increase the chances for the introduction of errors into the database; this is particularly true in cases involving larger users where information from specialized station location and assignment databases is transmitted from the PBX owner to the ALI database manager on a mainframe-to-mainframe basis. Given the large disparity in size and sophistication of PBX owners, a standardized data link interface would most likely be PC-based. This would not be suitable for larger users and would require undesirable changes to some data transfer arrangements already in place. Accordingly, TRACER recommends that the proposed rule be modified to permit other customer-specific data transfer agreements.

E. Verification Work

TRACER agrees that competent verification of the proper transmission of the station identification number should be required as part of the initial installation of a PBX system and any subsequent changes in emergency response location data. Proposed Rule § 68.228. However, TRACER members believe that the proposed scope of approved verification personnel is unduly restrictive.

Specifically, TRACER is concerned about the requirement that verification work be supervised by (1) a licensed engineer, or (2) a person with at least six months' experience in terminal equipment installation and specific training in the operation of

E-911 emergency service trunks and the performance of proper verification procedures. This proposed training requirement is unnecessary and would impose significant costs on PBX owners. Anyone with six months' experience in terminal equipment installation should be capable of conducting the verification. At a maximum, TRACER would support a requirement that PBX manufacturers include E-911 verification procedures as part of the vendor training program provided to their customers. Thus, anyone who has completed such a program could be included among the approved verification personnel. In addition, TRACER believes that other certified telecommunications personnel, such as registered communications distribution designers, are just as capable as licensed engineers of performing or supervising the required verification functions.

F. Definition of "Emergency Response Location"

In Appendix C at page 37 of the Notice, "emergency response location" is defined as a "specific site, corresponding to a calling station in a dispersed private telephone system." TRACER recommends that the proposed rules be modified to clarify that each telephone station does not have to be considered an emergency response location.

Effective emergency response requires only that the location of an emergency caller be identified with enough specificity so that the caller can be located after a relatively short search. In many office contexts several phones are located in close proximity to one another; in these circumstances all phones

located in a single vicinity should be considered to be located in the same emergency response location. In some cases, a simple street address or a floor designation should be sufficient to permit an effective search. Based upon the recommendations of representatives of the public safety community, the Washington PBX Work Group concluded that the following location information was adequate to ensure effective emergency response:

A. Residential Units:

Single-Family Dwellings - The correct street address.

Multiple-Family Dwellings - The correct street address, complex name, building number, and apartment number.

Hotels, Motels and Dormitories - The correct street address, complex name, building or annex name, floor, and room number.

B. Commercial/Industrial

The correct street address, company name, and the following additional information as applicable:

- If the address includes multiple buildings, a building identifier.
- If the building is over three stories, the floor from which the call is placed.
- If the area of a floor is greater than 25,000 square feet or, if in the opinion of local authorities it cannot be searched in less than three minutes, identifiable areas not greater than 25,000 square feet or meeting search parameters.

Requiring PBX owners to assign a separate emergency response location to each calling station would be unnecessary from the standpoint of providing effective emergency response. It would also be costly and unnecessarily consume valuable number resources.

G. Preemption of Inconsistent State Regulation

TRACER strongly supports the Commission's proposal to preempt state regulation of PBX/E-911 compatibility. TRACER agrees completely with the Commission's statement at ¶ 19 that

> federal rules are appropriate in these circumstances to avoid confusion among telephone users connected to PBXs and to ensure that PBX equipment operates on the public switched telephone network (PSTN) at an optimal level for emergency purposes.

TRACER believes there are significant benefits to developing national standards and regulations for implementing E-911 service and customer premise equipment support of that service. In fact, national standards are essential to avoid regional conflicts and incompatibilities. Otherwise, equipment manufacturers will not know what to design, and end-users could be left with insurmountable difficulties in managing their networks for effective emergency response and enabling them to meet their primary business missions.

TRACER believes that it is important that such standards be developed not only for customer premise equipment but also for E-911 network equipment, and for the ALI databases. Moreover, they should accommodate existing implementations of E-911 calling and allow for evolution of that service to the use of new technology. Accordingly, TRACER looks forward to the comments of the manufacturers to see if, in their opinion, the proposed rules adequately account for the evolution of technology.

III. CONCLUSION

TRACER supports reasonable efforts to enhance effective emergency response. As a general matter, TRACER believes that the Commission's proposed rules establish a framework that will advance that goal; however, some modifications are necessary to avoid confusion, the imposition of unjustified burdens on PBX owners, and, in some cases, a marked degradation in the effectiveness of existing emergency response arrangements.

Respectfully submitted,

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